

FEB 01 2006

**FAX TRANSMISSION****DATE:** February 1, 2006**PTO IDENTIFIER:** Application Number 09/240,632-Conf. #7584  
Patent Number**Inventor:** Yutaka Murakami et al.**MESSAGE TO:** US Patent and Trademark Office**FAX NUMBER:** (571) 273-8300**FROM:** CONNOLLY BOVE LODGE & HUTZ LLP  
Morris Liss**PHONE:** (202) 331-7111**Attorney Dkt. #:** 20402-00568-US**PAGES (Including Cover Sheet):** 16**CONTENTS:** Fee Transmittal (1 page)  
Information Disclosure Statement with Certification and Petition (w/ SB/08) (3 pages)  
Appl. No. 10/256,202 Nov. 1, 2005 Office Action (10 pages)  
Charge \$130 to deposit account 22-0185  
Certificate of Transmission (1 page)

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**CONNOLLY BOVE LODGE & HUTZ LLP**  
1990 M Street, N.W., Suite 800, Washington, DC 20036-3425  
Telephone: (202) 331-7111 Facsimile: (202) 293-6229

FEB 01 2006

PTO/SB/97 (09-04)

Approved for use through 07/31/2006. OMB 0651-0031

U. S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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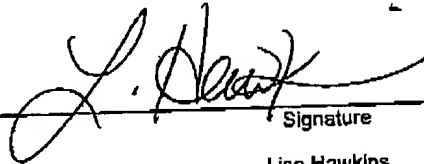
Application No. (if known): 09/240,632

Attorney Docket No.: 20402-00568-US

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NO. 1173 P. 3/16

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PTO/SB/17 (12-04v2)

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Effective on 12/08/2004. Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818). <b>FEE TRANSMITTAL</b> <b>For FY 2005</b>		<b>Complete if Known</b> Application Number <b>09/240,632-Conf. #7584</b> Filing Date <b>February 1, 1999</b> First Named Inventor <b>Yutaka Murakami</b> Examiner Name <b>C. M. Fan</b> Art Unit <b>2634</b> Attorney Docket No. <b>20402-00568-US</b>																										
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27		<b>TOTAL AMOUNT OF PAYMENT (\$)</b> <b>130.00</b>																										
<b>METHOD OF PAYMENT (check all that apply)</b> <input type="checkbox"/> Check <input type="checkbox"/> Credit Card <input type="checkbox"/> Money Order <input type="checkbox"/> None <input type="checkbox"/> Other (please identify): _____ <input checked="" type="checkbox"/> Deposit Account Deposit Account Number: <b>22-0185</b> Deposit Account Name: <b>Connolly Bove Lodge &amp; Hutz LLP</b> For the above-identified deposit account, the Director is hereby authorized to: (check all that apply) <input checked="" type="checkbox"/> Charge fee(s) indicated below <input type="checkbox"/> Charge fee(s) indicated below, except for the filing fee <input checked="" type="checkbox"/> Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 <input checked="" type="checkbox"/> Credit any overpayments																												
<b>FEE CALCULATION</b>																												
<b>1. BASIC FILING, SEARCH, AND EXAMINATION FEES</b>																												
	<b>FILING FEES</b> <table border="1"> <thead> <tr> <th>Application Type</th> <th>Fee (\$)</th> <th>Small Entity Fee (\$)</th> </tr> </thead> <tbody> <tr><td>Utility</td><td>300</td><td>150</td></tr> <tr><td>Design</td><td>200</td><td>100</td></tr> <tr><td>Plant</td><td>200</td><td>100</td></tr> <tr><td>Reissue</td><td>300</td><td>150</td></tr> <tr><td>Provisional</td><td>200</td><td>100</td></tr> </tbody> </table>		Application Type	Fee (\$)	Small Entity Fee (\$)	Utility	300	150	Design	200	100	Plant	200	100	Reissue	300	150	Provisional	200	100	<b>SEARCH FEES</b> <table border="1"> <thead> <tr> <th>Small Entity Fee (\$)</th> </tr> </thead> <tbody> <tr><td>500</td></tr> <tr><td>100</td></tr> <tr><td>300</td></tr> <tr><td>500</td></tr> <tr><td>0</td></tr> </tbody> </table>		Small Entity Fee (\$)	500	100	300	500	0
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<b>2. EXCESS CLAIM FEES</b>			<b>Small Entity Fee (\$)</b>																									
Fee Description Each claim over 20 (including Reissues) Each independent claim over 3 (including Reissues) Multiple dependent claims			50 200 360																									
<table border="1"> <thead> <tr> <th>Total Claims</th> <th>Extra Claims</th> <th>Fee (\$)</th> <th>Fee Paid (\$)</th> </tr> </thead> <tbody> <tr> <td>13</td> <td>- 20 =</td> <td>x</td> <td>=</td> </tr> </tbody> </table>			Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)	13	- 20 =	x	=	<table border="1"> <thead> <tr> <th colspan="2">Multiple Dependent Claims</th> </tr> <tr> <th>Fee (\$)</th> <th>Fee Paid (\$)</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>	Multiple Dependent Claims		Fee (\$)	Fee Paid (\$)													
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<b>3. APPLICATION SIZE FEE</b> If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).																												
<table border="1"> <thead> <tr> <th>Total Sheets</th> <th>Extra Sheets</th> <th>Number of each additional 50 or fraction thereof</th> <th>Fee (\$)</th> <th>Fee Paid (\$)</th> </tr> </thead> <tbody> <tr> <td></td> <td>- 100 =</td> <td>/ 50</td> <td>(round up to a whole number) x</td> <td>=</td> </tr> </tbody> </table>		Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)		- 100 =	/ 50	(round up to a whole number) x	=	<b>Fees Paid (\$)</b>  																
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<b>4. OTHER FEE(S)</b> Non-English Specification: \$130 fee (no small entity discount) Other (e.g., late filing surcharge): 1484 Petitions to the Director not specifically ... <b>130.00</b>																												
<b>SUBMITTED BY</b> Signature <i>Morris Liss</i> Registration No. <b>24,510</b> Telephone <b>(202) 331-7111</b> Name (Print/Type) <b>Morris Liss</b> Date <b>February 1, 2006</b>																												

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Docket No.: 20402-00568-US  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Yutaka Murakami et al.

Application No.: 09/240,632

Confirmation No.: 7584

Filed: February 1, 1999

Art Unit: 2634

For: MODULATION METHOD AND RADIO  
COMMUNICATION SYSTEM

Examiner: C. M. Fan

**INFORMATION DISCLOSURE STATEMENT  
WITH CERTIFICATION AND PETITION  
(37 CFR 1.56 AND 1.97-1.98)**

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.97(b)(3) and in an effort to comply with applicants' duty of disclosure under 37 CFR 1.56, the following information is hereby brought to the attention of the Examiner.

**Certification (37 CFR 1.97(d) and (e))**

I hereby certify that each item of information contained in this Disclosure Statement was recently discovered within three months. The reference was cited in an Office Action in a related application (Serial No. 10/256,202) not more than three months prior to the filing of this Statement. The Office Action was mailed November 1, 2005. A copy of said Office Action is enclosed herewith.

02/02/2006 MBINAS 00000020 220185 09240632  
01 FC:1464 130.00 DA

443755

Application No.: 09/240,632

Docket No.: 20402-00568-US

**Petition (37 CFR 1.97(d))**

It is believed that all the requirements of 37 CFR 1.97 (d) have been satisfied. It is therefore respectfully requested that this Disclosure Statement and the enclosed references be considered and made of record.

Please charge our Deposit Account No. 22-0185 in the amount of \$130.00 covering the fee set forth in 37 CFR §§ 1.97(d) and 1.17(i). The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 22-0185, under Order No. 20402-00568-US. A duplicate copy of this paper is enclosed.

2-1-2006  
Dated: ~~January 31, 2006~~

Respectfully submitted,

By 

Morris Liss

Registration No.: 24,510

CONNOLLY BOVE LODGE &amp; HUTZ LLP

Correspondence Customer Number: 30678

Attorney for Applicant

PTO/SB/08a/h (07-05)

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Substitute for form 1449A/B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		<b>Complete if Known</b>			
		Application Number	09/240,632-Conf. #7584		
		Filing Date	February 1, 1999		
		First Named Inventor	Yutaka Murakami		
		Art Unit	2634		
		Examiner Name	C. M. Fan		
Sheet	1	of	1	Attorney Docket Number	20402-00568-US

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA*	US-6,087,986	07-11-2000	Hiroki Shoki	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. \* CITE NO.: Those application(s) which are marked with an single asterisk (\*) next to the Cite No. are not supplied (under 37 CFR 1.98(a)(2)(ii)) because that application was filed after June 30, 2003 or is available in the IFW. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature	Date Considered
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NO. 11736EP. 7/16



20402/00650 JS  
ML GRP  
UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/256,202	09/27/2002	Yutaka Murakami	20402-00650-US	4205
EXAMINER				
KIM, KEVIN				
ART UNIT			PAPER NUMBER	
2638				

30678 7590 11/01/2005  
CONNOLLY BOVE LODGE & HUTZ LLP  
SUITE 800  
1990 M STREET NW  
WASHINGTON, DC 20036-3425

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/256,202

Applicant(s)

MURAKAMI ET AL.

Examiner

Kevin Y. Kim

Art Unit

2638

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 50-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 50-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_



Application/Control Number: 10/256,202  
Art Unit: 2638

### DETAILED ACTION

#### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 50-63 are rejected under 35 U.S.C. 112, second paragraph; as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 50 and 57 each recite "estimating an channel distortion by the second modulation signal." However, ordinarily modulation signals are distorted because of non-ideal channel characteristics, this limitation is confusing. It appears that applicant may have meant to recite channel distortion *on* the second modulation signal. Correction or confirmation is required to remove indefiniteness.

#### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 50-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Seki (EP 0734132 A2, previously cited).

Claims 50 and 57.

Seki et al discloses a receiver, see Fig.4, comprising;

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Art Unit: 2638

a receiving portion (24) for receiving a quadrature base band signal including first modulation into which a second modulation signal is regularly inserted,  
a channel distortion estimation means (32) on the second modulation signal for generating a channel distortion estimation ,  
a first demodulation portion (35) for extracting the first modulation signal based on the channel distortion estimation,  
a second demodulation portion (35) for extracting the second modulation signal.

Claims 51.

A differential encoding and decoding is well known in the art reduce bandwidth and thus would have been obvious to differentially encode the transmission signal and differentially decode and demodulate at the receiver.

Claim 52.

Since the demodulation portion (24-35) reads on "the first demodulating portion" including "a quasi synchronous detector" since it appears that the demodulation is performed synchronously.

Claims 53 and 54.

One of the modulation signals is a OPSK signal, which is subjected to "a phase shift keying." BPSK is another variation of a PSK modulation.

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Art Unit: 2638

Claims 55 and 56.

Another of the modulation signals is a QAM signal, a variation of which is a 16 QAM includes "at least 8 signal points."

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 57-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seki et al (EP 0734132 A2, previously cited).

Claim 57.

Seki et al discloses a receiver, see Fig.4, comprising;

a receiving portion (24) for receiving a quadrature base band signal including first modulation into which a second modulation signal is regularly inserted,

Application/Control Number: 10/256,202  
Art Unit: 2638

a channel distortion estimation means (32) on the second modulation signal for generating a channel distortion estimation ,  
a first demodulation portion (35) for extracting the first modulation signal based on the channel distortion estimation,  
a second demodulation portion (35) for extracting the second modulation signal.

Seki et al fails to disclose all the subject matter as above but for "a frequency offset estimating portion." However, it is well known that a transmission signal is subject to frequency as well as phase and amplitude distortion during transmission and estimation of frequency offset is generally performed at the receiver to remove frequency distortion. Thus, it would have been obvious to one skill in the art at the time the invention was made to include a frequency offset estimation means in the receiver of Seki et al for the purpose of removing any frequency distortion of the received modulation signal as well.

**Claims 58.**

A differential encoding and decoding is well known in the art reduce bandwidth and thus would have been obvious to differentially encode the transmission signal and differentially decode and demodulate at the receiver.

**Claim 59.**

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Art Unit: 2638

Since the demodulation portion (24-35) reads on "the first demodulating portion" including "a quasi synchronous detector" since it appears that the demodulation is performed synchronously.

Claims 60 and 61.

One of the modulation signals is a OPSK signal, which is subjected to "a phase shift keying." BPSK is another variation of a PSK modulation.

Claims 62 and 63.

Another of the modulation signals is a QAM signal, a variation of which is a 16 QAM includes "at least 8 signal points."

#### *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shoki et al (US 6,087,986) teaches different modulation for pilot signals.

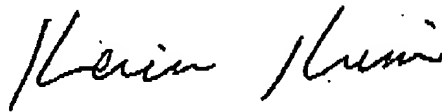
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

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Application/Control Number: 10/256,202  
Art Unit: 2638

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KEVIN KIM  
PATENT EXAMINER

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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet <u>1</u> of <u>1</u>		Complete <input checked="" type="checkbox"/> Known	
Application Number	10/256,202-Conf. #4209		
Filing Date	September 27, 2002		
First Named Inventor	Yutaka Murakami et al.		
Art Unit	2634		
Examiner Name	C. M. Fan		
Attorney Docket Number	20402-00650-US		

U.S. PATENT DOCUMENTS				
Examiner/Inventor	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	IAA	US-5,833,421	08/1999	Alamouti et al.

FOREIGN PATENT DOCUMENTS				
Examiner/Inventor	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		Country Code <sup>1</sup> -number <sup>2</sup> -Word Code <sup>3</sup> (if known)		

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NON PATENT LITERATURE DOCUMENTS				
Examiner/Inventor	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume/issue number(s), publisher, city, and/or country where published.		T <sup>4</sup>

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Examiner Signature	<i>[Signature]</i>	Date Considered	10/28/05
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PAGE 5/5 \* RCVD AT 2/8/2005 4:15:07 PM [Eastern Standard Time] \* SVR:USPTO-EFXXF-10 \* DMS:8729306 \* CSID:202 293 6229 \* DURATION (mm:ss):01:30

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**Notice of References Cited**

Application/Control No.

10/256,202

Applicant(s)/Patent Under  
Reexamination  
MURAKAMI ET AL.

Examiner

Kevin Y. Kim

Art Unit

2638

Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,087,986	07-2000	Shoki et al.	342/383
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
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